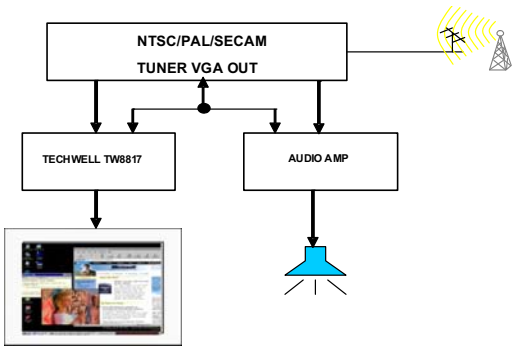
TW8817

Digital LCD Panel Processor with built-in MCU, NTSC/PAL/SECAM Decoder and TCON

FN7763
Rev.0.00
December 6, 2010



Applications

- Mobil LCD TVs
- Rear seat entertainment
- Portable DVD, PMP and HMD (Head Mount Display)

Features

The TW8817 is a low cost high quality TFT panel controller with embedded NTSC/PAL/SECAM TV decoder. It incorporates all the features required to create multi-purpose low cost LCD TV systems in a single package. It contains all the circuits required to adapt standard NTSC/PAL/SECAM analog TV input signals for display on various TFT LCD panel types. An integrated timing controller allows direct interface with digital LCD panels. Its versatile analog inputs allow CVBS, S-video, signal to be connected simultaneously.

Other features include: high quality adaptive 4H Comb Filter, 2D de-interlacer and panoramic scaler, and multi-window programmable OSD. It also includes image enhancement functions such as black and white stretch, 2D peaking, CTI, and favorite color enhancement to further improve picture quality. it also includes cost saving feature like CCFL and LED controller, charge pump booster and programmable panel offset control. In addition, TW8817 has built-in microcontroller with external SPI interface.

Analog Video Decoder

- NTSC (M, 4.34) and PAL (B, D, G, H, I, M, N, N combination), PAL (60), SECAM with automatic format detection
- Advanced synchronization processing for VCR trick play signal
- Two 10-bit ADCs and analog clamping circuit.
- Built-in analog anti-aliasing filter
- Fully programmable static gain or automatic gain control for the Y or CVBS channel
- Programmable white peak control for the Y or CVBS channel
- Software selectable analog inputs allows any of the following combinations:
  - "3 composite video
  - "1 S-Video
- 4-H adaptive comb filter Y/C separation
- PAL delay line for color phase error correction
- Digital PLL for both color and horizontal locking
- Programmable hue, brightness, saturation, contrast, sharpness, Gamma control, and noise suppression
- Automatic color control and color killer
- Detection of level of copy protection according to Macrovision standard

Built-in Micro-controller

- Support external SPI Interface
- Support I2C Master interface with GPIO
- Support Up to 4 MCU GPIO
- Support UART interface with GPIO
- Support IR or interrupt with GPIO

TFT Panel Support

- Supports a wide variety of Digital single pixel active matrix TFT panels up to WXGA(1280x768), 100MHz
- Supports 3, 4, 6 bits per pixel format

On Screen Display

- Built-in OSD controller with integrated character ROM and programmable RAM font.
- Multi-window OSD support with color pallet
- Support OSD overlay with alpha blending

Image Control

- Programmable hue, brightness, saturation, contrast
- Sharpness control with vertical peaking
- Programmable color transient improvement control
- Built-in de-interlacing engine
- Independent RGB gain and offset controls
- Panorama / Water-glass scaling
- Programmable Gamma correction tables
- Black/White Stretch
- Programmable favorite color enhancement

Power Management

- Supports Panel power sequencing.
- Supports DPMS for monitor power management.
- 1.8 / 3.3 V operation

Timing Controller (TCON)

- Support programmable interface signals for control

Column (source) driver / row (gate) driver

Miscellaneous

- Supports 2-wire serial bus interface
- Spread spectrum PLL
- CCFL controller
- LED controller
- Low-speed ADC for KEY scan
- 5V tolerant I/O
- Power-down mode
- Typical power consumption less than 350mW
- Single 27MHz crystal
- 80-pinTQFP package

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